Preface

The tremendous growth of science and concern over its possible implication has made people conscious about the scientific advancement. In social studies of science emphasis has been laid mainly on impact of science on society. At the same time very little attention has been paid to the impact of society on science. In fact, the spectacular development in science and technology has made the common people stand in awe of scientists' power. The image of scientists has changed in the society. They are no more peculiar and isolated individuals but members of a recognized profession employed in academic institutions and government laboratories.

Scientific research has become a collective organized activity and institutional norms have developed to direct, guide and regulate the practice of science. As science became more organized and institutionalized, the number of scientists grew and the concept of scientific community began to emerge and dominate the process of knowledge generation. This simple observation makes one wonder about the social context of scientific achievement.

This work is an outcome of my desire to understand the impact of society on science and scientists. Pursuit of science requires a particular personality orientation, which is shaped by the socio-cultural environment mindset and personality, which grow in a specific social and cultural environment. My own transition from natural science to sociology at post graduation level provided an impetus to explore into the relationship between science and socio-cultural environment. After moving from Lucknow University to Jawaharlal Nehru University (JNU), New Delhi, I worked on my M. Phil Dissertation in which I explored science and society relationship from a sociological perspective. I moved into the Ph.D. level with the desire to explore in empirical terms some of the assumptions about science and lives of scientists in India.

My stay in JNU as a research student enabled me to come into contact with many social scientists. Informal discussion and dialogue with them further increased my keenness to work out this theme in empirical terms. It may be mentioned that studies carried out by Robert K. Merton, Michael Mulkay, David Bloor, Hagstrom, Norman Storer, John Ziman, Bernard Barber, Thomas Kuhn, Popper and Paul Feyerabend in the West and some prominent Indian scholars like G.S. Aurora, V.V. Krishna, Prof. E. Haribabu Ashish Nandy, Shiv Visvanathan etc. have stimulated my research attempt. In fact, there are very few research works available on Indian
scientific community. In this work a modest attempt has been made to explore into the
dimensions, community life and cultural orientation of scientists in two
research organizations - NPL, Delhi and I.I.Sc., Bangalore.

This is revised version of my original thesis submitted in January 2001. One
external examiner has raised some pertinent questions regarding some parts of my
thesis. We took his questions seriously and have tried genuinely to answer all his
queries by incorporating suitable changes at respective places in the present work. His
valuable comments and sharp observation have helped us immensely to redefine, and
reformulate many conceptual and methodological issues. We have worked hard for a
year to carryout the revision work. I re-visited many times National Physical
Laboratory in order to interact with the same scientists to get more insight on the
issues raised by the examiner. Besides this old field diaries and filled questionnaires
were thoroughly consulted for gathering requisite data required for the revision work.
Some of the major changes made in the thesis in the light of the examiner's comments
and suggestions are given below in brief.

1. In chapter first, theoretical perspectives have been extended. As per examiner's
suggestions in order to situate the findings of the study, all major theoretical
perspectives in sociology of science like, functionalists, Marxist, conflict model,
interest model and constructivists and its sub-approaches have been critically
analysed. Since no single theoretical framework is adequate to understand the
complex nature of social institution of science and its functioning in modern times,
we have tried to locate our study between two major theoretical frameworks —
functionalist and constructionist.

2. In order to make conceptual and methodological clarification, chapter second has
been re-written. Concepts like normative dimensions, community life and cultural
orientation have been reformulated in the context of the present study. Sampling
procedure has been explained in detail in order to remove ambiguities and
inconsistencies.

3. In order to explore the views of scientists about religious belief, the category
'neither believe nor disbelieve' (table 6.3) has been used to show the suspension of
judgement regarding the issue. Surjeet Sinha in his study entitled, "Indian
scientists: The Socio-Cultural and Organisational Context of their Professional
Environment" has used some similar category like, "vague, haven't thought of it much half believe or not believe" to inquire into the belief of scientists in God.

4. All tables have been corrected according to suggestion of the examiner by replacing 'no' by freq. (frequency)

5. It is assumed that relationship among scientists is characterised by egalitarian ethos. Scientists are required to treat each other as equal, both because a man's personal characteristics are assumed to be unrelated to the quality of his contribution to knowledge and inequalities among them might interfere with free and open communication. The notion of hierarchy and collegiality have been used to investigate the kind of relationship scientists have in a research team, in division of work in a research unit and involvement of scientists in different research activities. Collegial research team is characterised by sharing of authority/power equally among colleagues. It has been found that hierarchical and bureaucratic relations are detrimental for the formation of creative communal relationship among scientists.

6. Anomalies regarding categorization of scientists (table 4.26 now revised table 4.24) have been rectified as suggested by the examiner. Total number of papers published by each scientist in his entire career (till April 1999) have been divided by his total number of years of service in order to get per year average production. And per year average production has been further divided by five in order to get average production over a period of five years. Please see table (4.22), (4.23), (4.24).

7. In the present study only the quantity of papers has been taken into account and the quality of papers has not been mentioned. In fact, our main purpose has been to investigate into their out put pattern reflected in various forms like books, research papers, technical reports, patents, Ph.D students and consultancy services, etc. These various forms of out put show the value orientation (academic or applied) of scientists. The ways for ascertaining quality of papers have been also described in brief.

8. It is true that scientists cannot be categorized into exclusive category of followers and non-followers of norms. Hence, table 5.11 has been deleted. In fact, distinct culture of applied research and basic research is merging together.
9. We realised that quantitative data can reflect only general trend of a social phenomena. Hence, in order to bridge the gap between perception and actual behaviour qualitative data, which have not been used earlier in details, have been incorporated in chapter fourth, fifth and sixth extensively.

10. Case studies are useful to provide a detailed account of the life world of actors. Hence, case studies have been further enriched, by incorporating more factual and qualitative data. However, these case studies have been incorporated to provide additional insights on broader issues discussed in the present study. Each case highlights different facets of a scientist’s life and his work. Therefore, these case studies could be seen as complementary to the analysis made in the research chapters.

11. The conclusion has been re-written in the context of theoretical framework developed in chapter first. The major findings and observation of the study are analysed in functionalist - constructionist framework of sociology of science.

We have made our best efforts to revise this thesis by incorporating all suggestions made by the respected examiner within limited period of time and resources.

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